

IERMAN, V.I.

Hemodynamic disorders in stenosis of the carotid artery. Zdr. nev.

z. prikh. 65 no.10:1488-1492 '65.

(MIRA 18:10)

I. Belarusskiy nauchno-issledovatel'skiy institut neurologii,  
neurochirurgii i fizioterapii ( direktor - dozent I.P. Antonov),  
Minsk.

"APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929320015-0

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929320015-0"

Lerman, Z. A.

79-1-23/63

AUTHORS: Kul'yan, Kh. V. , Lerman, Z. A. , Merkur'yeva, L. A.

TITLE: Hydrogenation in the Presence of Colloidal Palladium (Gidri rovaniye v prisutstvii kolloidal'nogo palladiya)  
IX. Hydrogenation of Vinylpropyl- and Vinylbutyl-Acetylene  
(IX. Gidrirovaniye vinilpropil - i vinilbutilatsetilenov)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol.28, Nr 1, pp.110-116(USSR)

ABSTRACT: One of the authors earlier investigated the hydrogenation of two close homologues of vinylacetylene, namely vinylmethyl- and vinylethyl-acetylene. It was of interest to test the same reaction also on other derivatives of vinylacetylene with a longer chain of atoms. For this purpose the authors hydrated vinylpropyl- and vinylbutyl-acetylene in the presence of colloidal palladium. The hydrogenation products were separated from the initial product and the mixture of olefines and di-olefines brominated. According to the quantity of di- and tetra-bromides separated by vacuum distillation it was possible to conclude the proportional quantity of olefines and

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Hydrogenation in the Presence of Colloidal Palladium. IX. Hydrogenation of Vinylpropyl- and Vinylbutyl-Acetylene

diolefines. The physical constants of the oxonolysis and the condensation with maleic-acid anhydride gave information on the structure of the olefines and diolefines regenerated with zinc from the bromides. According to the nature of the curve which gives the velocity process it can be seen that the hydrocarbons to be investigated are almost not different from their earlier investigated homologues, vinylmethyl- and vinylethyl-acetylene (see diagram). On the basis of the investigations it was thus determined that in the hydrogenation of vinylpropyl- and vinylbutyl-acetylene in the presence of colloidal palladium the addition of hydrogen takes place in the same manner as in vinylmethyl- and vinylethyl-acetylene, i.e. at the triple bond, the further hydrogenation of the developing dienes to the corresponding ethylene hydrocarbons taking place simultaneously. It was found that the addition of a small amount of p-chlorobenzene thiocyanate increases the selection of the hydrogenation process. Octadiene-1,3; 1,2,3,4-tetrabromoheptane and tetrabromooctane were characterized for the first time; the exact constants for hepta-diene-1,3 were described. There are 1 figure, 2 tables, and

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Hydrogenation in the Presence of Colloidal Palladium. IX. Hydrogenation  
of Vinylpropyl- and Vinylbutyl-Acetylene

9 references, 7 of which are Slavic,

ASSOCIATION: Leningrad Technological Institute imeni Lensoveta  
(Leningradskiy tekhnologicheskiy institut im. Lensoveta)

SUBMITTED: January 4, 1957

AVAILABLE: Library of Congress

Card 3/3

1. Chemistry 2. Hydrocarbons 3. Mathematical analysis

LFB

LENINOV, N. Gorod Ufa. Moskva, Izd. Akademii arkhitektury SSSR, 1951. 26 p.,  
23 plates. (Arkhitektura gorodov SSSR). DIG: MA1127.U351b

SO: LC, Soviet Geography, Part II, 1951, Unclassified

USSR/Farm Animals. Sheep and Goats.

Q

Abs Jour: Ref Zhur-Biol., No 17, 1958, 78766.

Author : Lermontov, V. S.; Tkhon, Ye. S.

Inst :

Title : On the Effectiveness of Winter Lambing of Sheep.

Orig Pub: Ovtsevodstvo, 1958, No 1, 5-6.

Abstract: In a test group (February birth), 5% of the ewes were barren, 0.5% of the lambs died; 124 lambs of 100 ewes were raised. In the control group (April birth) respectively: 15, 2.1 and 100. Difference in live weight of the lambs for 5 months in favor of the test group comprised: with young rams 2.7 kg, ewe yearlings

Card : 1/2

LERMONTOV, V. V., MONOZENKO, M. A., SELIVANOV, A. A., TARASOV, V. N.

"The reactogenic and immunogenic properties of adenoviruses and haemadsorptive viruses."

Report submitted for the 1st Intl. Congress on Respiratory Tract Diseases of Virus and Rickettsial Origin, Prague, Czech. 23-27 May 1961.

TUSHINSKIY, M.D.; STAVSKAYA, V.V.; BOGORODSKAYA, T.A.; KAL, Ye.L.;  
LERMONTOV, V.V. (Leningrad)

Some clinical and diagnostic problems in influenza. Klin.med.  
no.12:54-60 '61. (MIRA 15:9)

1. Iz kafedry propedevticheskoy terapii (zav. - prof. M.D.  
Tushinskiy) I Leningradskogo meditsinskogo instituta imeni  
I.P. Pavlova.

(INFLUENZA)

S/275/63/000/002/007/032  
D405/D301

AUTHOR: Lermontov, V.V.

TITLE: Microwave guide and resonator of microtron

PERIODICAL: Referativnyy zhurnal, Elektronika i ee primenenie, no. 2, 1963, 59, abstract 2A349 (Elektron. uskoriteli, Tomsk, Tomskiy un-t, 1961, 161-166 (Collection))

TEXT: Details are given on the microwave system of the microtron of the Scientific Research Institute of the Tomsk Polytechnical Institute. An accelerating microwave voltage of 511 kV in the accelerating gap of the resonator ( $R$ ), loaded with an electron stream, was obtained by means of a powerful magnetron microwave-oscillator. The magnetron was coupled to  $R$  by a waveguide with an inserted phase-inverter for obtaining optimal coupling. The phase change is effected by moving along the wider walls of the waveguide a long polystyrene ( $\epsilon = 2.54$ ) plate supported by two bars which are at a distance of  $3/4 \lambda_{\text{mean}}$  from each other, having matched chamfers  $\frac{1}{2} \lambda_{\text{mean}}$  long. Satisfactory results were obtained

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Microwave guide ...

S/275/63/000/002/007/032  
D405/D301

for a pulse power of 750 kw ( $\tau = 2$  microsec.,  $f = 200$  c.); the standing-wave ratio was 1.05. The R-circuit is shown. The standing-wave ratio of the guide from the magnetron side was 1.045 - 1.15. The waveguide was filled with air. The vacuum window of k was in the shape of a Fernico ring about 3 mm thick, in which a molybdenum-glass disc of 54 mm diameter was pasted or soldered in. The microtron resonator ought to have high shunt resistance and high Q. The best R is of ellipsoidal-hyperboloidal type ( $Q_0 > 20 \cdot 10^3$ ). But it is difficult to construct; one normally uses toroidal R with lower Q-values. The design of such an R is given for  $f = 3000$  Mc and  $U = 511$  kV. Resonators with  $Q_0 = (5-6) \cdot 10^3$  were obtained. From the design formulas follows that the accelerator current is the higher, the lower the load-free conductivity of R and the higher its Q. Hence follows that ellipsoidal-hyperboloidal resonators are most convenient in use. Preliminary tests with such resonators made of brass yielded  $Q_0 = (5-6.4) \cdot 10^3$ , which is a promising result. More detailed information about the design, construction and manufacturing process of such resonators will be published.

[Abstracter's note: Complete translation]

Card 2/2

ACCESSION NR: AR4022439

S/0058/64/000/001/A037/A037

SOURCE: RZh. Fizika, Abs. 1A339

AUTHOR: Kanter, B. Z.; Lermontov, V. V.; Noskov, D. A.; Yushkov, Yu. G.

TITLE: 5-MeV microtron

CITED SOURCE: Izv. Tomskogo politekhn. in-ta, v. 122, 1962, 45-49

TOPIC TAGS: microtron, microtron characteristics, microtron electromagnet, particle accelerator, accelerator, electron injection

TRANSLATION: The 5-MeV microtron of the Tomsk Polytechnic Institute is described (RZhFiz, 1963, 1A401--403). The high frequency section of the amplifier includes a magnetron oscillator, two phase shifters, an absorbing load, and a toroidal cavity with Q of approximately 2000. The electromagnet poles had a diameter of 55 cm and the mag-

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ACCESSION NR: AR4022439

netic core had a cross section 30 x 12 cm. All the main units of the accelerator were constructed in 1959. During the starting, problems involved in the optimal coupling between the resonator and the waveguide were investigated, along with the possibility of using an incandescent cathode for electron injection. The current attained to date on the ninth orbit (5 MeV energy) is several microamperes per pulse. K. Belovintsev.

DATE ACQ: 03Mar64

SUB CODE: PH, SD

ENCL: 00

Card 2/2

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CIA-RDP86-00513R000929320015-0

KANTER, B.Z.; LERMONTOV, V.V.; NOSKOV, D.A.; YUSHKOV, Yu.G.

A 5 Mev. microtron. Izv. TPI 122:45-49 '62.

(MIRA 17:9)

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000929320015-0"

LERMONTOVA, T.A.

X-ray characteristics of the effect of quateleron on the  
motor-evacuation function of the stomach under normal con-  
ditions and in some gastric diseases. Prudy LSGMI 74:261.  
265 '62. (MIRA 17:10)

LERMONTOVA, T. A. (Leningrad)

Effect of fubromegan on the motor-evacuation function of the  
stomach (x-ray studies). Klin. med. no.11:96-100 '61.  
(MIRA 14:12)

1. Iz kafedry rentgenologii (zav. - prof. B. M. Shtern) i kafedry  
propedevtiki vnutrennikh bolezney (zav. - chlen-korrespondent AMN  
prof. S. M. Ryss) Leningradskogo sanitarno-gigiyenicheskogo  
meditsinskogo instituta (dir. - prof. A. Ya. Ivanov)

(AUTONOMIC DRUGS) (STOMACH--RADIOGRAPHY)

LERMONTOVA, Ye.V.; CHERNYSHEVA, N.Ye., redaktor; SHUMOV, V.V., redaktor;  
MINTINA, N.P., tekhnicheskiy redaktor

[Upper Cambrian trilobites and brachiopods near Boshchekul (north-eastern Kazakhstan)] Verkhnekembriiskie trilobity i brakhiopody Boshche-Kulia (Severo-vostochnyi Kazakhstan). Moskva, Gos. izd-vo geologicheskoi lit-ry, 1951. 49 p. (MLRA 8:6)

(Boshchekul--Trilobites, Fossil)  
(Boshchekul--Brachiopoda, Fossil)

LERMONTOVA, Ye.V.; CHERNYSHEVA, N.Ye., redaktor; VOLKOVA, A.N., redaktor;  
MANINA, M.P., tekhnicheskij redaktor

[Trilobites and brachiopoda of the Lower Cambrian in Eastern Siberia]  
Nizhnekembriiskie trilobity i brakhiopody Vostochnoi Sibiri.  
Moskva, Gos. izd-vo geol. lit-rv, 151, 221 p. (MLRA 8:6)  
(Siberia, Eastern--Brachiopoda)  
(Siberia, Eastern--Trilobites)

LERNER, A., prof., doktor tekhn.nauk

Automatic control of the future. MTO 2 no.11:11-15 M '60.  
(MIRA 13:11)

1. Zaveduyushchiy Laboratoriyyey samonastraivayushchikhsya sistem  
avtomaticheskogo upravleniya Instituta avtomatiki i telemekhaniki  
AN SSSR.

(Automatic control)

KOTOV, A.; LERNER, A.

Semiautomatic machine for grinding form cutters. Mashinostroitel'  
no.1:18 Ja '63. (MIRA 16:2)  
(Grinding machines)

SHAKHTIN, D.M.; LEVINTS'KICH, E.V.; PRASKO, V.S.; ALDKHIN, A.I.;  
LEERNER, A.I. KULIK, A.I.; ZHELTOPRYUKH, V.P.; VASHCHENKO, V.P.

Apparatus for determining the density of a glass bar from the  
absorption of gamma radiation. Zav.lab. 30 no.4:501-502 '64.  
(MIRA 17:4)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporev i  
Chasov-Yarskiy kombinat ogneupornykh izdeliy.

ACCESSION NR: AP4033622.

S/0032/64/030/004/0501/0502

AUTHORS: Shakhtin, D. M.; Levintovich, E. V.; Prasko, V. S.; Alekhin, A. I.; Lerner, A. I.; Kulik, A. I.; Zhelobryukh, V. P.; Vashchenko, V. P.

TITLE: Apparatus for determining the density of glass beams by gamma ray absorption

SOURCE: Zavodskaya laboratoriya, v. 30, no. 4, 1964, 501-502

TOPIC TAGS: measuring apparatus, glass property, density measurement, gamma ray absorption

ABSTRACT: Apparatus is described for the nondestructive measurement of the density of glass beams by measuring the attenuation of gamma rays passing through the material. The source of gamma rays is  $\text{Co}^{60}$  with an activity of 20 mg-equiv of radium shielded by 20 cm of lead. The detector is a scintillation counter with a 40 x 40 mm NaI crystal. The density of products 250-350 mm thick can be determined within 0.01  $\text{g}/\text{cm}^3$  in 3-4 minutes. Orig. art. has: 1 diagram.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov i Chasov-Yarskiy kombinat ogneupornikh izdeliy (Ukrainian Scientific Research Institute of Refractory Materials and Chasov-Yarskiy Combine of Refractory Products)

SUBMITTED: 00

DATE ACQ: 28Apr64

ENCL: 00

SUB CODE: MT

NO REF Sov: 000

OTHER: 000

Card 1/1

IZYUMSKIY, V.P.; LERNER, A.I.

Using gyratory sieves for the screening of refractory materials.  
Ogneupory 30 no.2:10-15 '65. (MIFA 18:3)

1. Opytnyy zavod Ukrainskogo nauchno-issledovatel'skogo instituta  
ogneuporov.

LERNER, A.L., polkovnik meditsinskoy sluzhby, kand. med. nauk

Device for obtaining contents of the stomach. Voen.-med.  
zhur. no.2:86-87 '65. (MIRA 18:11)

LERNER, A.L., kand.med.nauk, GLEZER, G.I. kand.med.nauk (L'vov)

A case of streptotrichosis of the lungs with metastasis into the midbrain and development of Itsenko-Cushing syndrome. Klin.med. 36 no.9:1141 S'58 (MIR 11:10)

(ACTINOMYCOSIS, case reports  
lungs, with metastasis into midbrain & Cushing synd.  
(Rus))

(LUNG DISEASES, case reports  
actinomycosis with metastasis into midbrain & Cushing synd. (Rus))

(CUSHING SYNDROME, compl.  
pulm. streptotrichosis with mesencephalic metastases  
(Rus))

(MESENCEPHALON, dis.  
streptotrichosis, metastatic from lungs, with  
Cushing synd. (Rus))

LERNER, A.L.

Acute erythroblastophtisis of unknown etiology. Klin.med. 38  
no.7:150-152 '60. (MIRA 13:12)  
(ANEMIA)

PETROV, T.D., polkovnik meditsinskoy sluzby, zasluzhennyj vrach UkrSSR;  
LERNER, A.L., kand. med. nauk, polkovnik meditsinskoy sluzby

Clinical aspects, treatment and prevention of peptic ulcer.  
Voen. med. zhur. no.10:18-21 O '65. (MIA 18:11)

LERNER, A.M.

Modernizing screw-cutting lathes. Azerb.neft.'choz. 32 no. 4:12-43  
Ap '59. (MIRA 12:7)  
(Metal-cutting tools)

LERNER, A.M.; MOREKHODTSEV, N. Ye.

Load constancy regulator for the G-116 machine. Sov. Pat. No.  
no.11:1415 '64 (MIRA 16:1)

1. Azerbaydzhanskiy nauchno-issledovatel'skiy institut naftyanogo  
maschinostroyeniya.

LERNER, A.M.

Specialized repair plants and large repair shops are  
needed. Mashinostroitel' no.6:4-5 Je '60.  
(MIRA 13:8)  
(Machine tools--Maintenance and repair)

LERNER, A. S.

PL 74276

USSR/Electricity - Power Systems                    Jan 52  
    Insulation

"Measuring the Insulation Resistance of Three-  
Phase Networks with Insulated Neutral," Engr  
A. S. Lerner

"Prom Energet" No 1, pp 11-14

Describes practical method for measuring insulation resistance without removing voltage in 380-  
500 v, 3-phase networks with insulated neutral,  
with special reference to mine networks, where  
maintenance of high insulation level is essential  
to safety. Method uses moving-coil dc voltmeter  
connected to half-wave rectifier.                    242T36

Демидов, Георгий Васильевич; Лerner, Aleksandr Shaylovich; GIPP, V.V.,  
ред.; VOLKOV, S.V., tekhn.red.

[Introduction to the operation of gas supply services in cities  
and populated places] Vvod v eksploatatsiu gazovykh khoziaistv  
gorodov i naselennykh punktov. Moskva, Izd-vo M-va kommun. khoz.  
RSFSR, 1957. 53 p. (MIRA 11:3)  
(Gas manufacture and works)

LERNER, A.Sh.

Create single rules for supplying cities with gas. Stori, truboprov.  
7 no.6:19-20 Je '62. (MIRA 15:7)  
(Gas distribution)

PHASE I BOOK EXPLOITATION 1027

Klimov, Valeriy Ivanovich; Lerner, Anna Samoylovna; Pekarskiy, Mikhail Davydovich; Smirnov, Lev Nikolayevich; Smileyevich, Mark Abramovich

Spravochnik instrumental'schchika-konstruktora (Tool Designer's Handbook) 2d ed., rev. and enl. Moscow, Mashgiz, 1958. 608 p. 40,000 copies printed.

Reviewer: Alekseyev, G.A., Engineer; Eds.: Rozin, A.I., Aronov, Z.M., and Ploskov, V.A., Engineers; Tech. Ed.: Dugina, N.A.; Executive Ed. (Ural-Siberian Division, Mashgiz): Bezukladnikov, M.A., Engineer.

PURPOSE: This handbook is intended for engineers, technicians and students in vuzes and tekhnikums.

COVERAGE: In the handbook data are presented for the design of cutting tools for planing, drilling, boring, countersinking, milling, threading, broaching and gear cutting. Design data for high-speed and carbide tools for use on automatic and semiautomatic machines are also discussed. No personalities are mentioned. There are 53 Soviet references.

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LERNER, A.S.

Source of the creative initiative. Mashinostroitel' no.7:41  
'61. (MIRA 14:7)  
(Vitebsk—Machine-tool industry)

VEYTONAK, P.G.; LORNER, A.S.; SEMENOV, V.K.

Automatic control of a compressor station. Avtom. i prib. no. 2:  
9-12 Ap-Je '63. (MIRA 12:2)

1. Ukrainskiy gosudarstvennyy proyektnyy institut stankostroitel'noy  
promyshlennosti.

LERNER, A.S.

Activity of an innovators' council. Mashinostroitel' no.5:4  
My '62. (MIRA 15:5)  
(Vitebsk--Milling machines)

LERNER, A.S.; TANKEVICH, R.I.

Structural shortcomings of turning tools. Mashinostroitel' no. 38 Ap '63.  
(MIRA 16:5)  
(Metal-cutting tools)

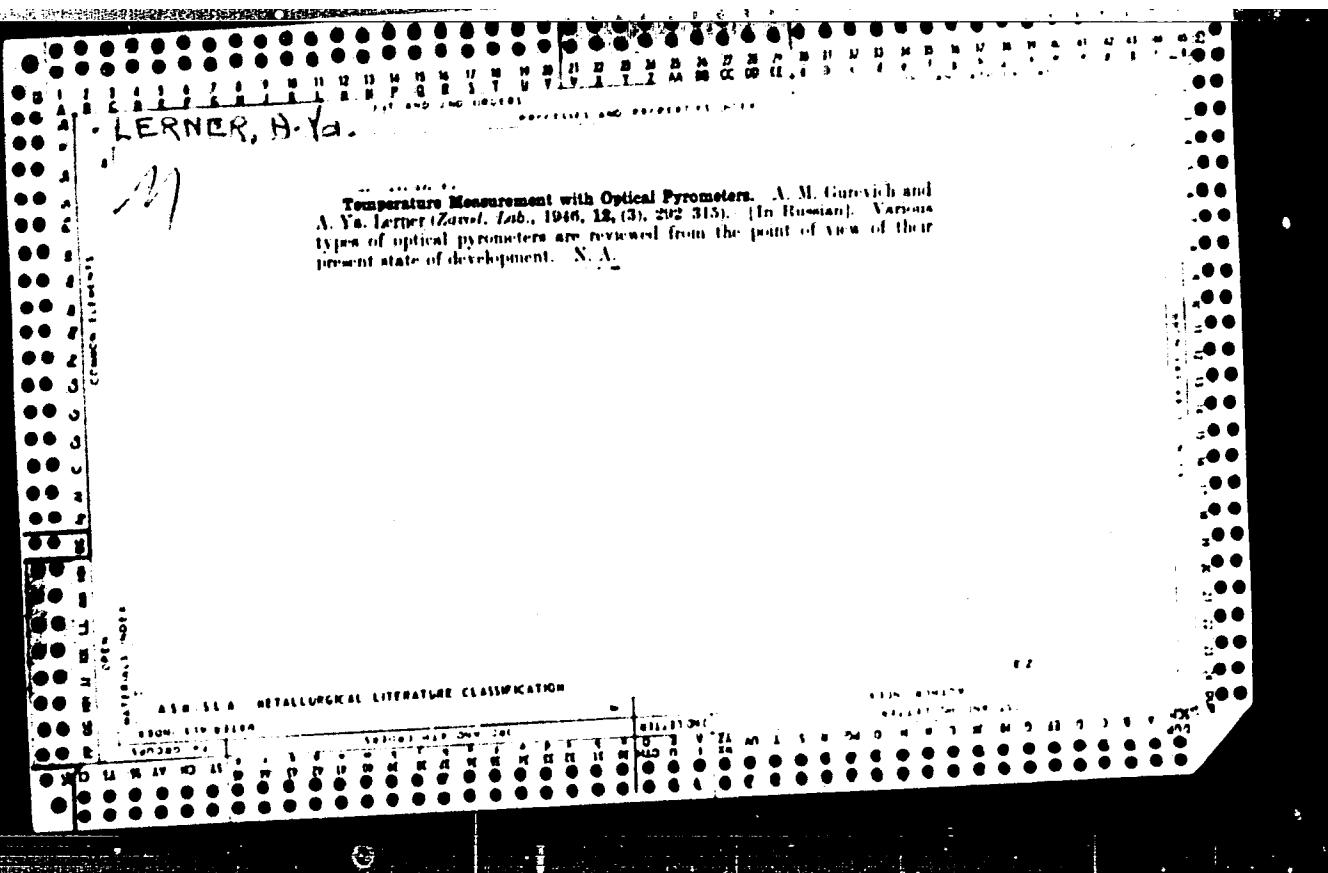
KOZAROVITSKIY, L.Ya., inzh.; LERNER, A.S., inzh.

Mechanization and automation of the shakeout of large and medium  
molds. Mashinostroenie no.5:70-75 S-0 '63. (MIRA 16:12)

1. Ukrugiprostanok.

LERNER, A.S.

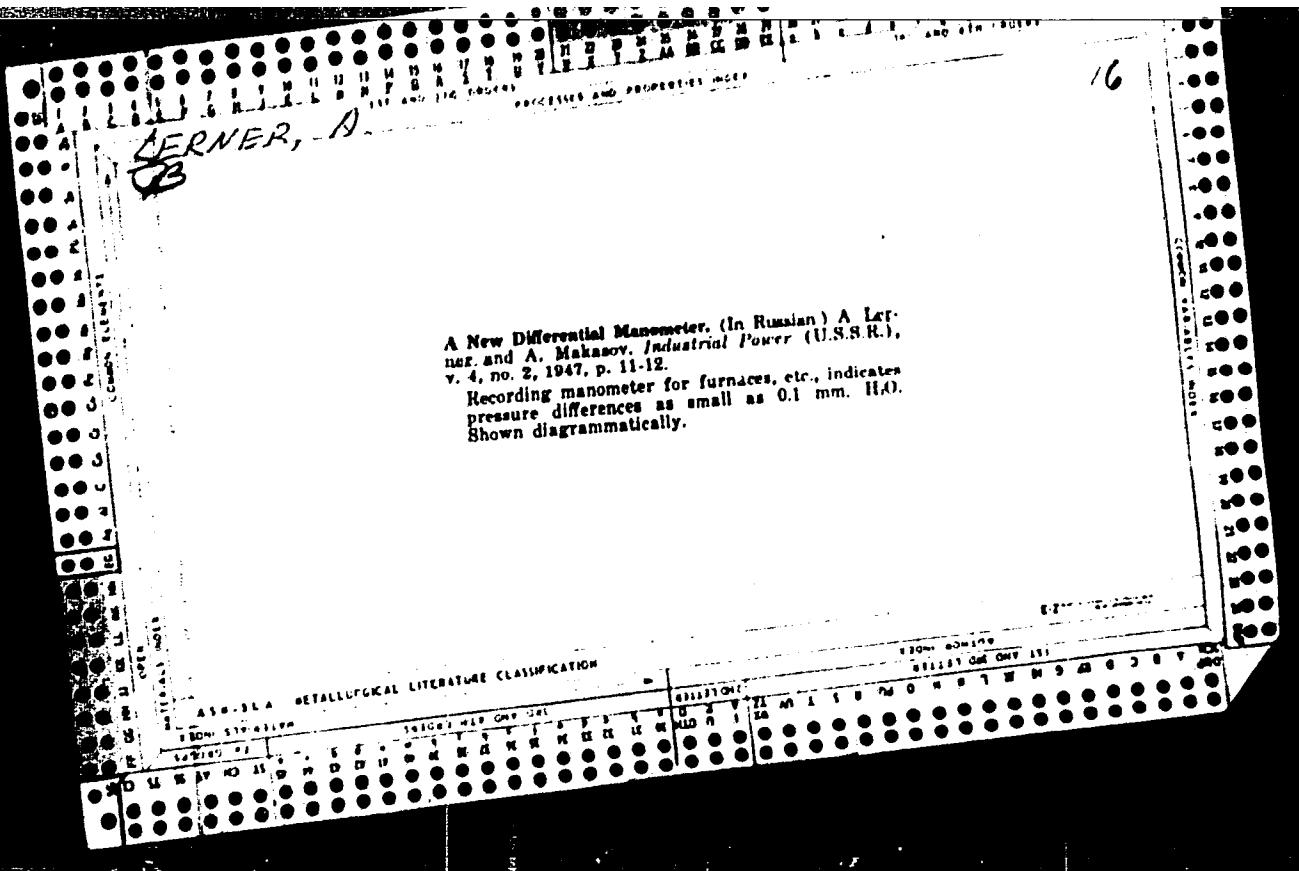
Green light to diamond grinding. Mashinostroitel' no.6:33-34  
Je '64. (MIRA 17:8)



*LEARNER, A.*

16

A New Differential Manometer. (In Russian) A Lef-  
nar, and A. Makasov. *Industrial Power* (U.S.S.R.),  
v. 4, no. 2, 1947, p. 11-12.  
Recording manometer for furnaces, etc., indicates  
pressure differences as small as 0.1 mm. H<sub>2</sub>O.  
Shown diagrammatically.



LERNER, A. YA.

Oct 48

USSR/Engineering

Rolling

Mathematics, Applied

"Conversion Processes Occurring During Cold Rolling Under Tension," Ye. A. Rozenman,  
Cand Tech Sci, A. Ya. Lerner, Designing and Repair Trust, MEP and Inst of Automatics  
and Telemech, Acad Sci USSR, 9 pp

"Stal!" No 10

Analysis of tension alteration during cold rolling of strip, taking account of  
elongation and forward-flow effect, enables more accurate statement of laws governing  
process and provides data on which calculations may be based.

PA 19/49T56

PA 27/49T41

LERNER, A. YA

USSR/Electricity  
Electrical Equipment

Nov 48

"Review of 'Electrical Equipment for Textile Plants,'  
by I. A. Petrov and S. P. Rozanov," A. Ya. Lerner,  
Cand Tech Sci, Corr Course, All-Union Power Eng  
Inst, 3 pp

"Elektrichestvo" No 11

Highly critical review of subject book.

27/49T41

LEBENK, A. YA.

21713      LEBENK, A. YA. Zkono siunye naiball reerlipovenna storosti  
vrasheniya elektrorivadov uvernik metar'ancv. Nauu-Tekhn.  
Sessii po sholdnii elektronerril. (Okt. 1947r.) VLF. I. N.  
1949, S. 41-51

SO: Letopis' Zhurnal'nykh Rabot, No. 29, Moscow, 1949

LERNER, A. Ya.

"Dividing Automatic Regulating Systems Into Elements" (Raschleneniye sistem avtomaticheskogo regulirovaniya na elementy), Mashgiz, 1949, 36 pp.

LERNER, A. Ya.

"Automatic Temperature Regulation of Electrothermic Furnaces," Collection of Data of the Scientific and Technical Session on Electric Power Economy (Sbornik materialov nauchno-tehnicheskoy sessii po ekonomii elektroenergii), No II, MONITOE, 1949, 139 pp.

All-Union Scientific and Technical Society of Power Engineers Moscow Division, Industrial Electrical Engineering Section.

W - 15368, 6 Dec 50

LERNER, A. Ya.

USSR/Electricity - Drives, Electric  
Couplings

Feb 50

"Transitional Processes in Certain Electric Drives  
That Possess Elastic Coupling," A. Ya. Lerner, Inst  
of Automech and Telemech, Acad Sci USSR, 12 pp

"Iz Ak Nauk SSSR, Otdel Tekh Nauk" No 2

Lerner's graphical method can greatly simplify investi-  
gation and design of complicated systems of electric  
drives intercoupled with elastic mechanical or elec-  
trical couplings between elements. Calculations are  
greatly simplified by his method of abridging values  
of electrical and mechanical constants and of con-  
sidering movement of each element relative to the sys-  
tem. Submitted 30 Jul 49 by Acad V. S. Kulebakin.

158T30

LERNER, A.YA.

Technology

Automatic operation of electric drive, Moskva, Gosenergoizdat, 1951.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

LERNER, A. Ya.

"Improvement of Dynamic Characteristics of Automatic Compensators," Automotics  
and Telemechanics, Vol. 12, No. 2, 1952.

LERNER, A. Ya.

"Improvement of the dynamic properties of automatic balancing systems of non-linear linkages II," July 1954.

SO: D-136343, 15 Dec. 1954.

USSR/Physics - Regulation in optimum limit state

FD-1392

Card 1/1 : Pub. 10 - 1/12

Author : Lerner, A. Ya. (Moscow)

Title : Limiting rapid action of automatic regulation systems

Periodical : Avtom. i telem., 15, No 6, 461-477, Nov-Dec 1954

Abstract : The author studies the problems of determining the form assumed by the optimum regulation process in rapidly acting systems. He shows that the limiting state of the rapid action of automatic regulation systems is determined by the values of the system coordinates. He gives examples of the determination of limiting state of rapid action for an extensive class of systems, including systems with nonlinear characteristics. The author introduces the concept of regions of isochrons in the phase space, which concept facilitates and makes more graphic the determination of the limiting state of rapid action and the form of optimum processes for automatic regulation systems. Five references: A. A. Fel'dbaum, "Optimum processes in automatic regulation systems," ibid., 14, No 6, 1953. V. V. Solodovnikov, "Synthesis of correcting devices of tracking systems by means of optimum and typical logarithmic frequency characteristics," ibid., 14, No 5, 1953. A. Ya. Lerner, "Improvement of dynamic properties of automatic compensators by nonlinear links," ibid., 13, Nos 2 and 4, 1952. A. A. Fel'dbaum, "Simplest relay systems," ibid., 10, No 4, 1949.

Instit APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929320015-0"

Submitted : February 13, 1954

LERNER, A.YA.

SOLODOVNIKOV, V.V.; professor, doktor tekhnicheskikh nauk, redaktor;  
AYZERMAN, M.A., doktor tekhnicheskikh nauk; BASHKIROV, D.A., kandidat  
tekhnicheskikh nauk; BROMBERG, P.V., kandidat tekhnicheskikh nauk;  
VORONOV, A.A., kandidat tekhnicheskikh nauk, dotsent; GOL'DFARB, L.S.,  
doktor tekhnicheskikh nauk, professor; KAZAEVICH, V.V., doktor tekhnicheskikh nauk;  
KRASOVSKIY, A.A., kandidat tekhnicheskikh nauk,  
dotsent; LERNER, A.YA., kandidat tekhnicheskikh nauk; LETOV, A.M.,  
doktor fiziko-matematicheskikh nauk; professor; MATVEYEV, P.S.,  
inzhener; MIKHAYLOV, F.A., kandidat tekhnicheskikh nauk; PETROV, B.N.;  
PETROV, V.V., kandidat tekhnicheskikh nauk; POSPELOV, G.S., kandidat  
tekhnicheskikh nauk, dotsent; TOPCHIEV, Yu.I., inzhener; ULANOV,  
G.M., kandidat tekhnicheskikh nauk; KHRAMOV, A.V., kandidat tekhnicheskikh nauk;  
TSYPLKIN, Ya.Z. doktor tekhnicheskikh nauk, professor;  
LOSSIYEVSKIY, V.L., doktor tekhnicheskikh nauk, professor, retsenzent;  
TIKHONOV, A.Ya., tekhnicheskiy redaktor

[Fundamentals of automatic control; theory] Osnovy avtomaticheskogo  
regulirovaniia; teoriia. Moskva, Gos. nauchno-tekhn. izd-vo mashino-  
stroit. lit-ry, 1954. 1116 p. (MLRA 8:2)

1. Chlen-korrespondent AN SSSR (for Petrov, B.N.)  
(Automatic control)

SOV/124 58-1-93

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 12 (USSR)

AUTHOR: Lerner, A. Ya.

TITLE: Hunting Oscillations in Systems Having a Nonlinear Velocity Feedback  
in the Presence of Controller Lag (Avtokolebaniya v sistemakh s  
nelineynoy skorostnoy svyaz'yu pri nalichii zapazdyvaniya v regulatore)

PERIODICAL: Sb. stately po avtomatike i elektrotekhn. Moscow. AN SSSR, 1956,  
pp 36-41

ABSTRACT: An examination of an automatic-control system which differs from  
ordinary systems by the presence of a quadratic feedback. The  
presence of a lagging link in the system is assumed. The conditions  
that are conducive to the hunting of such a system are determined by  
the harmonic-balance method.

M. A. Ayzerman

Card 1/1

L 27236-65. ENT(d)/EFF(n)-2/EWP(1) P<sub>3-4</sub>/P<sub>q-1</sub>/P<sub>g-1</sub>/P<sub>u-1</sub>/P<sub>k-1</sub>/P<sub>1-4</sub> IJP(c)  
WN/G3/EC

ACCESSION NR: AT5003902

S/0000/64/000/000/0022/0031

AUTHORS: Gul'ko, F. B., Koza, N. Ya. (Doctor of technical sciences);  
Lerner, A. Ya.

TITLE: Method of optimal control with prediction

46

12

B+1

SOURCE: Vsesoyuznaya konferentsiya-seminar po teorii i metodam  
matematicheskogo modelirovaniya. 3d, 1962. Vychislitel'naya tekhnika v upravlenii (Computer technology in control engineering);  
sbornik trudov konferentsii, Moscow, Izd-vo Nauka, 1964, 22-31

TOPIC TAGS: optimization control system, optimal control, predictive control

ABSTRACT: After pointing out briefly the advantages offered by the use of control systems with predicted change-over and the difficulties involved in their practical realization, especially the difficulty of applying prediction methods to objects of order higher than

Card 1/3

L 27236-65

ACCESSION NR: AT5003902

the second, the authors point out a possibility of eliminating these difficulties in single-loop objects consisting of first-order elements, by making use of the features of the optimal processes in such systems. This permits the realization of an optimal control system for an n-th order system by developing an optimal regulator for an object of order  $n - 1$  in conjunction with a prediction unit. By applying this principle successively to objects of order ( $n - 1$ ), ( $n - 2$ ), etc., down to second-order inclusive, it is possible to construct for an object of n-th order a: optimal system whose control section consists of an aggregate of prediction units. The theory is illustrated for an optimal control system with prediction with respect to a single coordinate, and the optimal control of a fourth-order object is used as an illustrative example. It is shown also that since the prediction unit is a high-speed computer that repeats the solutions at high frequency but with relatively low accuracy requirements, the use of analog prediction units is most advantageous, and a predictor of this type with low drift is described.

Card 2/3

L 27236-65

ACCESSION NR: AT5003902

Orig. art. has: 6 figures and 2 formulas.

ASSOCIATION: None

SUBMITTED: 17Aug64

ENCL: 00

SUB CODE: IE, DP

NR REF Sov: 006

OTHER: 002

Card

3/3

L 10857-65 ASD(a)-5/AEDC(a)/AFETR/AFHDC/RAEN(d)/ESD(dp)  
ACCESSION NR: AP4041465 S/0103/64/025/006/0896/0908

B

AUTHOR: Gul'ko, F. B.; Kogan, B. Ya. (Doctor of technical sciences);  
Lerner, A. Ya. (Doctor of technical sciences); Mikhaylov, N. N.;  
Novosel'tseva, Zh. A.

TITLE: Prediction method with high-speed analog computers and its application

SOURCE: Avtomatika i telemekhanika, v. 25, no. 6, 1964, 896-908

TOPIC TAGS: automatic control, predictive automatic control, predictor, analog computer predictor

ABSTRACT: A method of optimum or near-optimum predictive control and the principles of analog predictors are considered. A time-optimized third-order system for controlling a 3-link plant is examined as an example illustrating the method of truncating the system by one order and using an analog-type predictor. The predictive method may be used for controlling plants of any order describable

Card 1/3

L 18857-65

ACCESSION NR: AP4041465

by this form of differential equation:  $\dot{x}_1 = f_1(x_1, u)$

$$\dot{x}_k = f_k(x_k, x_{k-1}),$$

$$\dot{x}_n = f_n(x_n, x_{n-1}),$$

where  $u = u(t)$  is the controlling action;  $|u(t)| \leq 1$ , all functions  $f_k$  ( $k = 2, 3, \dots, n$ ) are assumed to be continuous and continuously differentiable with respect to  $x_k, x_{k-1}$  and  $f_1$  continuous with respect to  $u$ . The optimality of the trajectories computed in any (but the first) predictor is ensured by the presence inside any predictor of other predictors computing, in an accelerating manner, the trajectories in a decreasing number of links. An approximate simulator of the plant is recommended for the predictor, which is intended for repeated solving of a set of differential equations. A laboratory model of such a predictor with six computing amplifiers, built by V. V. Gurov, permits an equation-solution

Card 2/3

L 18857-65

ACCESSION NR: AP4041465

frequency up to 200 per sec. Orig. art. has: 12 figures and 7 formulas.

ASSOCIATION: Institut avtomatiki i telemekhaniki AN SSSR (Institute of Automation and Telemechanics, AN SSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: DP, IE

NO REF SOV: 007

OTHER: 003

Card 3/3

LERNER, A.Ya. (Moskva); EPSHTEYN, V.L. (Moskva)

Information storage in control machine memory. Avtom. i telem.  
25 no.10:1493-1501 O '64. (MIRA 17:12)

AVEN, O.I., (Moskva); DOMANITSKIY, S.M., (Moskva); LERNER, A.Ya., (Moskva)

Magnetic amplifier control of a two-phase induction motor.  
Avtom. i telem. 17 no.8:717-721 Ag '56. (MLRA 9:10)

(Magnetic amplifiers) (Electric controllers)

LERNER, A.Ya., kandidat tekhnicheskikh nauk.

Calculations of the most satisfactory frequency of firing reversal  
for open-hearth furnaces. Sbor. Inst., stali no.35:133-145 '56.  
(MLRA 10:8)

1. Kafedra metallurgicheskikh pechey.  
(Open-hearth furnaces) (Heat--Transmission)

AVEN, Oleg Ivanovich, kand. tekhn. nauk; DOMANITSKIY, Sergey Mikhaylovich,  
kand. tekhn. nauk; LERNER, Aleksandr Yakovlevich, kand. tekhn.  
nauk; SHTEYNBOK, G.YU., inzh., red.; PONOMAREV, V.A., tekhn.red.

[Contactless executive mechanism with single-phase asynchronous  
motor] Beskontaktnyi ispolnitel'nyi mekhanizm s odnofaznym dviga-  
telyem. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii,  
1957. 16 p. (Perevodoi nauchno-tehnicheskii i proizvodstvennyi  
opyt. Tema 42. No.P-57-3/2) (MIRA 16:3)  
(Automatic control) (Servomechanisms)

Lerner, A.Ya.

133-7-22/28

AUTHOR: Lerner, A.Ya., Candidate of Technical Sciences.

TITLE: Automatic Control of the Process of Combustion of Compound Mixtures in Metallurgical Furnaces. (Avtoregulirovaniye gorenija slozhnykh smesey v metallurgicheskikh agregatakh)

PERIODICAL: Stal', 1957, no.7, pp. 651 - 655 (USSR)

ABSTRACT: A system of an automatic control of combustion based on a combined control of proportions of components of the combustible mixture and on the composition of waste gases is discussed. It is pointed out that most difficult problem is to produce sufficiently simple but reliable calculating instruments determining the actual value of the coefficient of excess oxygen at each instant of time. The solution of this problem in general terms is given. The functional scheme and the block diagram of the installation is shown in Figs. 1 and 2. The summation of signals fed from differential induction sensing devices is shown in Figs. 3 and 4. The scheme proposed was installed on an oil-fired open hearth furnace. The composition of the combustion mixture was as follows: oil, air used for atomising, pre-heated air and oxygen-enriched air. All gauges measuring the flow of the individual components were fitted with differential induction sensing devices. The concentration Card1/2 of oxygen in the oxygen-enriched air was controlled by a

133-7-22/28

Automatic Control of the Process of Combustion of Compound Mixtures  
in Metallurgical Furnaces.

magnetic gas analyser, the secondary of which is fitted with a rheostat sensing device, similarly to the analyser controlling the concentration of oxygen in the combustion products leaving the working space of the furnace. The diagram of the automatic control of combustion in the furnace is described and illustrated in Fig.6. Tests carried out on the furnace indicated that the system operated satisfactorily maintaining the coefficient of excess oxygen with an accuracy of about 5% (Fig.7). It is concluded that the automatic control of combustion of complex mixtures is possible by using computing systems, utilising existing instrumentation indicating the consumption of the individual components, fitted with induction or rheostat sensing devices. The proposed system of correlation of the signals from the sensing devices is applicable even in cases when the parameters of the sensing devices differ substantially. There are 7 figures.

ASSOCIATION: Moscow Institute of Steel (Moskovskiy Institut Stali)  
AVAILABLE: Library of Congress.  
Card 2/2

*LERNER A. Ya.*

. AVEN, O.I., kand.tekhn.nauk; DOMANITSKIY, S.M., kand.tekhn.nauk;  
LERNER, A.Ya., kand.tekhn.nauk

Servomechanisms of variable speed with noncontact control by two-phase asynchronous motors. Priborostroenie no.10:3-6 0 '57.

(MIRA 10:11)

(Servomechanism)

LEADER, Aleksandr Yakovlevich (Mos Steel Inst imeni Stalin) awarded  
sci degree of Doc Tech Sci for 11 Jun 55 defense of dissertation:  
"Improvement of the dynamic properties of automatic compensators with  
the aid of non-line communications" at the Council, Inst of Automatics  
and Telemechanics, AS, USSR; Prot No 9P, 15 Feb 58.  
(BMVO, 6-58,20)

LERNER, ALEXANDR YAKOVLEVICH

PHASE I BOOK EXPLOITATION

620

Lerner, Aleksandr Yakovlevich

Vvedeniye v teoriyu avtomaticheskogo regulirovaniya (Introduction to the Theory of Automatic Control) Moscow, Mashgiz, 1958.  
352 p. 16,000 copies printed.

Reviewer: Karabanov, V.A., Candidate of Technical Sciences;  
Ed.: Rozenman, Ye. A., Candidate of technical Sciences; Ed. of Publishing House: Polyakov, G. F.; Managing Ed. for Literature on Machine Building and Tool Making: Pokrovskiy, N.V., Engineer.

PURPOSE: The book is intended for engineers who are familiar with the technique of automatic control but lack a theoretical background in the field.

COVERAGE: The book presents the basic principles of automatic control theory. The text contains information about the structure of automatic control systems and the uses of their components. The static and dynamic characteristics of automatic control systems are given and the most important methods of selecting system  
Card 1/7

**Introduction to the Theory (Cont.)**

620

components are discussed. In writing this book the author was assisted by the following persons: E.G. Uderman, Candidate of Technical Sciences, (Chapter 11); B. A. Brik, Engineer, (paragraph 4 of Chapter 4); and A. G. Butkovskiy, Engineer. There are 29 references, 24 of which are Soviet, 3 English, and 2 German.

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## Introduction to the Theory (Cont.)

620

PART III. DETERMINATION OF STRUCTURE AND CALCULATION OF  
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JP/mtl  
9/25/58

Card 7/7

DDV-25-58-a-6/61

AUTHOR: Lerner, A.Ya., Doctor of Technical Sciences, Professor, Head  
of the Laboratory

TITLE: Self-Adjusting Systems (Samonastraivayushchiyesya sistemy)

PERIODICAL: Nauka i zhizn', 1958, Nr 8, pp 7-9 (USSR)

ABSTRACT: The author deals with self-adjusting automatic control systems. To make the problem clearer, he starts with automatics of the past, explaining that the control of operations and machines was accomplished by means of the so-called system of disconnected control or when the apparatus received and carried out the order without checking the results. The author illustrates it by the example of a controlled process of heat treatment of steel wire, describing the possibilities which may result in producing a wire which will not comply with requirements. Therefore, a new system, capable of controlling production had to be found, a system which increased the amount of information received from the object. The article contains a schematic diagram of this closed system with return connection, which has found wide distribution in controlling various processes. A self-adjusting system can also be achieved by connecting another block - an organ of self-adjustment.

Card 1/2

...y-25-58-8-6'61

Self-Adjusting Systems

receiving the signals from both the controlled object and from the man establishing its criterion, to the ordering device. A diagram in the article illustrates this. As a further means of improvement, the author mentions a "memory" device. The practical application of these latest systems is very limited. Tests are being made on using maximum-minimum controllers at tunnel furnaces, in which refractory material is being calcined. A maximum-minimum controller which performs successfully the automatic tuning of radiostations to the frequency of the master oscillator with a predetermined power of its circuit has been designed. In the metallurgical industry, a self-adjusting system controlling a mill which automatically welds a pipe from strip steel has been put to use. Work is also being done on self-adjusting systems for automatically controlling chemical processes.

There are 4 diagrams and 1 photo.

ASSOCIATION: Institut avtomatiki i telemekhaniki AN SSSR (Institute of Automation and Telemechanics AS USSR)

1. Control systems--Operation    2. Steel wire--Heat treatment

Card 2/2

LERNER, A.YA.

report to be presented at the 1st Intl Congress of the Inst. of  
Conf., 25 July-5 Aug. 1960, Moscow, USSR.

GAVRILOVA, M.A., doktor tekhn.nauk; ARTOBOLEVSKIY, S.I., doktor tekhn.  
nauk; BERSHTEYN, S.I., kand. tekhn. nauk; BOLGAKOV, A.A., kand.  
kand. tekhn. nauk; LERNER, A.Ya., doktor tekhn. nauk; MEYEROV,  
M.V., doktor tekhn. nauk; SURHOV, N.K., doktor tekhn. nauk;  
FEL'DBAUM, A.A., doktor tekhn. nauk; FILIPPOVICH, B.I., doktor  
tekhn. nauk; KHAMOY, A.V., doktor tekhn. nauk; SHORYGIN, A.B.,  
doktor tekhn. nauk

[Terminology on the basic concepts of automatic control] Termino-  
logija osnovnykh poniatij avtomatiki; doklad. Moskva, 1960. 31 p.  
(International Federation of Automatic Control, ost Internationa  
Congress, Moscow, 1960. Doklady, no.232) (MIRA 14:8)

1. Natsional'nyy komitet po avtomaticheskemu upravleniyu. Nauchno-  
tekhnicheskiy komitet terminologii. 2. Nauchno-tehnicheskiy ko-  
mitet terminologii Natsional'nogo komiteta SSSR po avtomatichesko-  
mu upravleniyu (for all).

(Automatic control--Terminology)

S/103/60/021/06/03/0  
B012/B054

AUTHORS: Butkovskiy, A. G., Lerner, A. Ya. (Moscow)

TITLE: Optimum Control of Systems With Distributed Parameters

PERIODICAL: Avtomatika i telemekhanika, 1960, Vol. 21, No. 6,  
pp. 682 - 691

TEXT: Variation problems of a new type are formulated in the first part of the present paper. They are conditioned by the necessity of finding an optimum control in the automation of objects with distributed parameters. The known papers on the theory of optimum control give no general method of solving the problems set. The problem of optimum control of systems with distributed parameters is set up here for certain classes of objects. These are expressed by systems of partial differential equations of the first order and the heat conductivity equation. The characteristic features of the control objects investigated are the following: besides the punctiform control effects, there are also spatially distributed control effects, as well as the limitations associated therewith. It is of importance that these control effects may be contained not only in the

Card 1/2

VR

Optimum Control of Systems With Distributed  
Parameters

S/103/60/021/06/03/016  
B012/B054

equations for the process but also in the boundary conditions. The control of objects of the type under consideration may have the purpose of attaining the minimum deviation of the object state from the desired state or the desired distribution of the object states in compliance with certain conditions. It is pointed out that it is essential to know whether the desired states are attainable. The solution of an optimum control problem is given for an object expressed by partial differential equations of the first order, and the structural scheme of the optimum control systems for such objects is shown. A procedure is mentioned on the basis of which the problem can be solved by means of the maximum principle of L. S. Pontryagin (Ref. 6). It is pointed out that the control system must have an extensive memory for an optimum control of the objects investigated. There are 3 figures and 12 references: 11 Soviet and 1 American.

✓B

Card 2/2

LERNER, A. YA.

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AUTHORS: Butkovskiy, A. G. and Lerner, A. Ya.

TITLE: Optimum Control of Systems With Distributed Parameters

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 4,  
pp. 778 - 781

TEXT: The authors study the problem of optimum control of objects which are described by a system of partial differential equations with first order derivatives:  $f_i(x, t, Q, \frac{\partial Q}{\partial x}, \frac{\partial Q}{\partial t}, u, v, w) = 0$ . Here,  $x$  and  $t$  are independent variables in the regions  $l_0 \leq x \leq l_1$ , and  $t_0 \leq t \leq t_1$ ,  $Q = Q(x, t) = (Q_1(x, t), \dots, Q_n(x, t))$  is a vector function characterizing the state of the object.  $u = u(t) = (u_1(t), u_2(t), \dots, u_k(t))$ ,  $v = v(x, t) = (v_1(x, t), \dots, v_r(x, t))$  and  $w = w(x) = (w_1(x), \dots, w_s(x))$  are control vector functions. These control functions are subject to the following restrictions: All or part of the partial derivatives up to the  $r$ -th order

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of the variables of the control functions are limited by upper and lower limits. Under these conditions three problems may be distinguished: 1) In what manner must the control functions change that with given initial and boundary conditions the functional  $I = I(x, t, Q, \partial Q/\partial x, \partial Q/\partial t, u, v, w)$  attains its minimum. 2) In what manner must the control functions change that the above mentioned functional attains its minimum if  $x \in [l_0, l_1]$ . and

3) in what manner must the control functions change that the same functional attains its minimum if  $t \in [t_0, t_1]$ . The condition that the functions  $Q(x, t_0)$  and  $Q(l_1, t)$  lie in a certain  $\varepsilon$ -neighborhood of a given vector function  $Q^*(x)$  or  $Q^*(t)$  must be fulfilled. The same considerations are made for those cases in which the object is described by a system of partial, differential equations with derivatives of higher order. As an example, the authors mention the problem of optimum control of a continuous-flow furnace in which thin bars are heated. The equation of heating  $a\partial x/\partial Q + a\partial Q/\partial t + Q - u = 0$  is set up. Here,  $0 \leq x \leq L$ ,  $0 \leq t \leq T$ ,  $Q = Q(x, t)$  is the temperature of the metal at a point  $x$  and at a moment  $t$ ,  $v$  is the rate of travel of the bars, and  $u = u(t)$  the temperature in the

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furnace. By the above described method the author obtains the functional  

$$I = \int_0^T [Q_z - Q(L,t)]^2 dt \quad (16),$$
where  $Q_z$  is a constant. This kind of problem was initially described under point 2). Here, it is solved by L. S. Pontryagin's maximum principle. It holds that  $u_1 \leq u(t) \leq u_2$ . The author obtains  $u(t) = u_2$  for  $\psi_1 > 0$ ,  $u(t) = u_1$  for  $\psi_1 < 0$ , and

$$u(t) = Q_z + av(t)\exp(-t/a) \cdot Q_0'(L - \{v(q)dq\}) \text{ with } \psi_1 = 0$$

$$\psi_1(t) = e^{-t/a} \left\{ C + \int_0^t \left[ Q_z - e^{-\tau/a} Q_0 (L - \int_0^\tau y(\eta) d\eta - \Delta(\tau)) \right] e^{\tau/a} d\tau \right\}$$

$a\Delta'(t) + \Delta(t) = u(t)$  at  $\Delta(0) = 0$ . C is obtained from the condition  $\psi_1(T)=0$

There are 11 references: 10 Soviet and 1 US.

**ASSOCIATION:** Institut avtomatiki i telemekhaniki Akademii nauk SSSR  
(Institute of Automation and Telemechanics of the Academy of Sciences USSR)

Card 3/4

LERNER, A. Ye., ~~xx~~ RYBASHOV, M. V., and PANASENKO, I. M.

"On the response-time of automatic potentiometers and the dynamic correction of primary transducers."

report presented at the 2nd Intl. Conference of Instruments and Measurements,  
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LERNER, Aleksandr Yakovlevich, doktor tekhn.nauk; GAVRILOV, Mikhail  
Aleksandrovich, prof., doktor tekhn.nauk; MALOV, Vladimir  
Sergeyevich, dozent, kand.tekhn.nauk; ISLANKINA, T.P., red.;  
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[Automation of tomorrow] Avtomatika zavtra. Moskva, Izd-vo  
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(MIRA 14:12)

(Automation)

PHASE I BOOK EXPLOITATION

SOV/5765

Lerner, Aleksandr Yakovlevich

Printsipy postroyeniya bystrodeystvuyushchikh sledyashchikh sistem i  
regulyatorov (Principles of Designing High-Speed Servomechanisms  
and Regulators) Moscow, Gosenergoizdat, 1961. 151 p. (Series:  
Biblioteka po avtomatike, vyp. 25) 16,000 copies printed.

Ed.: Ye. B. Pasternak; Tech. Ed.: K. P. Voronin; Editorial Board:  
I. V. Antik, S. N. Veshenevskiy, V. S. Kulebakin, A. D. Smirnov,  
B. S. Sotskov, Ye. P. Stefani, and N. N. Shumilovskiy.

PURPOSE: This book is intended for technical personnel concerned  
with the automation of production processes.

COVERAGE: The book presents the fundamentals of scientific and  
technical principles for the calculation and design of high-speed  
servosystems and regulators. Engineering methods of designing  
these systems are briefly reviewed. The practical application  
of the theory of optimum systems is illustrated by examples.

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## Principles of Designing (Cont.)

SOV/5765

The author thanks O. G. Varshavskiy, Engineer, for his assistance in compiling Sections 9, 19, and 20. There are 11 references, all Soviet.

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LERNER, A.YA., doktor tekhn. nauk, prof., otv. red.; SNEVCHENKO, G.N.,  
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[Proceedings of the 1st International Congress of the International  
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